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Item 7(d) of the provisional agenda  
(GOV/2012/34)

# Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran

*Report by the Director General*

## A. Introduction

1. This report of the Director General to the Board of Governors and, in parallel, to the Security Council, is on the implementation of the NPT Safeguards Agreement<sup>1</sup> and relevant provisions of Security Council resolutions in the Islamic Republic of Iran (Iran).
2. The Security Council has affirmed that the steps required by the Board of Governors in its resolutions<sup>2</sup> are binding on Iran.<sup>3</sup> The relevant provisions of the aforementioned Security Council resolutions were adopted under Chapter VII of the United Nations Charter, and are mandatory, in accordance with the terms of those resolutions.<sup>4</sup>

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<sup>1</sup> The Agreement between Iran and the Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons (INFCIRC/214), which entered into force on 15 May 1974.

<sup>2</sup> The Board of Governors has adopted 11 resolutions in connection with the implementation of safeguards in Iran: GOV/2003/69 (12 September 2003); GOV/2003/81 (26 November 2003); GOV/2004/21 (13 March 2004); GOV/2004/49 (18 June 2004); GOV/2004/79 (18 September 2004); GOV/2004/90 (29 November 2004); GOV/2005/64 (11 August 2005); GOV/2005/77 (24 September 2005); GOV/2006/14 (4 February 2006); GOV/2009/82 (27 November 2009); and GOV/2011/69 (18 November 2011).

<sup>3</sup> In resolution 1929 (2010), the Security Council: affirmed, inter alia, that Iran shall, without further delay, take the steps required by the Board in GOV/2006/14 and GOV/2009/82; reaffirmed Iran's obligation to cooperate fully with the IAEA on all outstanding issues, particularly those which give rise to concerns about the possible military dimensions of the Iranian nuclear programme; decided that Iran shall, without delay, comply fully and without qualification with its Safeguards Agreement, including through the application of modified Code 3.1 of the Subsidiary Arrangements; and called upon Iran to act strictly in accordance with the provisions of its Additional Protocol and to ratify it promptly (operative paras 1–6).

<sup>4</sup> The United Nations Security Council has adopted the following resolutions on Iran: 1696 (2006); 1737 (2006); 1747 (2007); 1803 (2008); 1835 (2008); and 1929 (2010).

3. By virtue of its Relationship Agreement with the United Nations,<sup>5</sup> the Agency is required to cooperate with the Security Council in the exercise of the Council's responsibility for the maintenance or restoration of international peace and security. All Member States of the United Nations agree to accept and carry out the decisions of the Security Council,<sup>6</sup> and in this respect, to take actions which are consistent with their obligations under the United Nations Charter.

4. This report addresses developments since the last report (GOV/2012/23, 25 May 2012), as well as issues of longer standing. It focuses on those areas where Iran has not fully implemented its binding obligations, as the full implementation of these obligations is needed to establish international confidence in the exclusively peaceful nature of Iran's nuclear programme.

## **B. Clarification of Unresolved Issues**

5. As previously reported, on 18 November 2011 the Board of Governors adopted resolution GOV/2011/69 in which, inter alia, it stressed that it was essential for Iran and the Agency to intensify their dialogue aimed at the urgent resolution of all outstanding substantive issues for the purpose of providing clarifications regarding those issues, including access to all relevant information, documentation, sites, material and personnel in Iran. In that resolution, the Board also called on Iran to engage seriously and without preconditions in talks aimed at restoring international confidence in the exclusively peaceful nature of Iran's nuclear programme. In light of this, the Agency and Iranian officials held talks in Tehran and Vienna,<sup>7</sup> during which a structured approach to the clarification of all outstanding issues was discussed, focusing on the issues outlined in the Annex to the Director General's November 2011 report and the Agency's request for access to the Parchin site. Issues related to the correctness and completeness of Iran's declarations, other than those included in the Annex to the November 2011 report, were to be addressed separately. During the talks in Vienna on 14 and 15 May 2012, Iran stated that access to the Parchin site would not be possible before agreement had been reached on a structured approach.<sup>8</sup>

6. As also previously reported, on 21 May 2012 the Director General held meetings with senior Iranian officials in Tehran to discuss issues of mutual interest.<sup>9</sup> Although some differences between Iran and the Agency on the document resulting from the talks on 14 and 15 May 2012 remained, H.E. Mr Saeed Jalili, Secretary of the Supreme National Security Council of Iran, made clear during a meeting with the Director General that these were not obstacles to reaching agreement on a structured approach.

7. Further talks between the Agency and Iranian officials were held in Vienna on 8 June 2012 and 24 August 2012 with a view to finalizing the structured approach, based on the document resulting from the talks in May 2012. However, important differences remain and no agreement could be reached on the structured approach.

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<sup>5</sup> The Agreement Governing the Relationship between the United Nations and the IAEA entered into force on 14 November 1957, following approval by the General Conference, upon recommendation of the Board of Governors, and approval by the General Assembly of the United Nations. It is reproduced in INFCIRC/11 (30 October 1959), Part I.A.

<sup>6</sup> The Charter of the United Nations, Article 25.

<sup>7</sup> GOV/2012/23, paras 5 and 7.

<sup>8</sup> GOV/2012/23, para. 7.

<sup>9</sup> GOV/2012/23, para. 9.

8. Despite the intensified dialogue between the Agency and Iran since January 2012, efforts to resolve all outstanding substantive issues have achieved no concrete results: Iran, in an initial declaration,<sup>10</sup> simply dismissed the Agency's concerns in connection with the issues identified in Section C of the Annex to GOV/2011/65; Iran has not responded to the Agency's initial questions on Parchin and the foreign expert; Iran has not provided the Agency with access to the location within the Parchin site to which the Agency has requested access; and Iran has been conducting activities at that location that will significantly hamper the Agency's ability to conduct effective verification. Notwithstanding Mr Jalili's statement referred to above, agreement on the structured approach has yet to materialize.

## **C. Facilities Declared under Iran's Safeguards Agreement**

9. Under its Safeguards Agreement, Iran has declared to the Agency 16 nuclear facilities and nine locations outside facilities where nuclear material is customarily used (LOFs).<sup>11</sup> Notwithstanding that certain of the activities being undertaken by Iran at some of the facilities are contrary to the relevant resolutions of the Board of Governors and the Security Council, as indicated below, the Agency continues to verify the non-diversion of declared material at these facilities and LOFs.

## **D. Enrichment Related Activities**

10. Contrary to the relevant resolutions of the Board of Governors and the Security Council, Iran has not suspended its enrichment related activities in the declared facilities referred to below. All of these activities are under Agency safeguards, and all of the nuclear material, installed cascades and the feed and withdrawal stations at those facilities are subject to Agency containment and surveillance.<sup>12</sup>

11. Iran has stated that the purpose of enriching UF<sub>6</sub> up to 5% U-235 is the production of fuel for its nuclear facilities<sup>13</sup> and that the purpose of enriching UF<sub>6</sub> up to 20% U-235 is the manufacture of fuel for research reactors.<sup>14</sup>

12. Since Iran began enriching uranium at its declared facilities, it has produced at those facilities approximately:

- 6876 kg (+679 kg since the previous report) of UF<sub>6</sub> enriched up to 5% U-235 (see Figures 1 and 2)

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<sup>10</sup> GOV/2012/9, para. 8.

<sup>11</sup> All of the LOFs are situated within hospitals.

<sup>12</sup> In line with normal safeguards practice, small amounts of nuclear material at the facility (e.g. some waste and samples) are not subject to containment and surveillance.

<sup>13</sup> As declared in Iran's Design Information Questionnaires (DIQs) for the Fuel Enrichment Plant.

<sup>14</sup> GOV/2010/10, para. 8; H.E. Mr Fereydoun Abbasi, Vice President of Iran and Head of the Atomic Energy Organization of Iran, reportedly made a statement to the effect that Iran plans to build four to five new reactors in the next few years in order to produce radioisotopes and carry out research ('Iran will not stop producing 20% enriched uranium', Tehran Times, 12 April 2011). He was also quoted by the Iranian Student's News Agency as saying "To provide fuel for these (new) reactors, we need to continue with the 20 per cent enrichment of uranium" ('Iran to build new nuclear research reactors – report', Reuters, 11 April 2011).

- 189.4 kg (+43.8 kg since the previous report) of UF<sub>6</sub> enriched up to 20% U-235 (see Figures 3 and 4)

## **D.1. Natanz: Fuel Enrichment Plant and Pilot Fuel Enrichment Plant**

13. **Fuel Enrichment Plant (FEP):** FEP is a centrifuge enrichment plant for the production of low enriched uranium (LEU) enriched up to 5% U-235, which was first brought into operation in 2007. The plant is divided into Production Hall A and Production Hall B. According to design information submitted by Iran, eight units are planned for Production Hall A, with 18 cascades in each unit. No detailed design information has yet been provided for Production Hall B.

14. As of 21 August 2012, Iran had fully installed 55 cascades in Production Hall A, of which 54 were declared by Iran as being fed with natural UF<sub>6</sub>,<sup>15</sup> and partially installed one other cascade. Preparatory installation work had been completed for another 34 cascades, and was ongoing in relation to 54 others (see Figure 5). All the centrifuges installed in Production Hall A are IR-1 machines. During a design information verification (DIV) on 11 August 2012, the Agency noted that Iran had started general preparatory work in Production Hall B. In a letter dated 23 August 2012, the Agency requested that Iran provide an updated DIQ for FEP including information for Production Hall B.

15. As previously reported,<sup>16</sup> the Agency has verified that, as of 16 October 2011, 55 683 kg of natural UF<sub>6</sub> had been fed into the cascades since production began in February 2007, and a total of 4871 kg of UF<sub>6</sub> enriched up to 5% U-235 had been produced. Iran has estimated that, between 17 October 2011 and 6 August 2012, a total of 23 698 kg of natural UF<sub>6</sub> was fed into the cascades and a total of approximately 2005 kg of UF<sub>6</sub> enriched up to 5% U-235 had been produced, which would result in a total production of 6876 kg of UF<sub>6</sub> enriched up to 5% U-235 since production began.

16. Based on the results of the analysis of environmental samples taken at FEP since February 2007<sup>17</sup> and other verification activities, the Agency has concluded that the facility has operated as declared by Iran in the relevant DIQ.

17. **Pilot Fuel Enrichment Plant (PFEP):** PFEP is a research and development (R&D) facility, and a pilot LEU production facility, which was first brought into operation in October 2003. It has a cascade hall that can accommodate six cascades, and is divided between an area designated for the production of LEU enriched up to 20% U-235 (Cascades 1 and 6) and an area designated for R&D (Cascades 2, 3, 4 and 5) (see Figure 6).

18. **Production area:** As of 21 August 2012, Iran was feeding low enriched UF<sub>6</sub> into two interconnected cascades (Cascades 1 and 6).

19. As previously reported,<sup>18</sup> the Agency has verified that, as of 13 September 2011, 720.8 kg of UF<sub>6</sub> enriched up to 5% U-235 produced at FEP had been fed into the cascades in the production area since production began in February 2010, and that a total of 73.7 kg of UF<sub>6</sub> enriched up to 20% U-235 had been produced. Iran has estimated that, between 14 September 2011 and 21 August 2012, a total of 364 kg of UF<sub>6</sub> enriched up to 5% U-235 at FEP was fed into the cascades in the production area and

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<sup>15</sup> Not all of the 9156 centrifuges in the cascades that were being fed with UF<sub>6</sub> may have been working.

<sup>16</sup> GOV/2012/9, para. 14.

<sup>17</sup> Results are available to the Agency for samples taken up to 30 March 2012. Since the plant was first brought into operation, the Agency has taken a large number of environmental samples at FEP, the results of which have indicated a level of enrichment of uranium of less than 5% U-235. A small number of particles from environmental samples taken in the cascade area continue to be found with enrichment levels above 5%, which are higher than the level stated in the DIQ for FEP. As noted in GOV/2010/46, paragraph 7, the Agency assesses that these results refer to a known technical phenomenon associated with the start-up of centrifuge cascades.

<sup>18</sup> GOV/2011/65, para. 15.

that approximately 50.4 kg of UF<sub>6</sub> enriched up to 20% U-235 were produced. This would result in a total production of 124.1 kg of UF<sub>6</sub> enriched up to 20% U-235 at PFEP since production began.

20. **R&D area:** Since the previous report, Iran has been intermittently feeding natural UF<sub>6</sub> into IR-2m and IR-4 centrifuges, sometimes into single machines and sometimes into small or larger cascades. Iran has yet to install three new types of centrifuge (IR-5, IR-6 and IR-6s) as it had indicated it intends to do.<sup>19</sup> Iran has also been intermittently feeding one cascade with depleted UF<sub>6</sub> instead of natural UF<sub>6</sub>.

21. Between 19 May 2012 and 21 August 2012, a total of approximately 3.4 kg of natural UF<sub>6</sub> and 20.3 kg of depleted UF<sub>6</sub> was fed into centrifuges in the R&D area, but no LEU was withdrawn as the product and the tails were recombined at the end of the process.

22. Based on the results of the analysis of the environmental samples taken at PFEP<sup>20</sup> and other verification activities, the Agency has concluded that the facility has operated as declared by Iran in the relevant DIQ.

## D.2. Fordow Fuel Enrichment Plant

23. The Fordow Fuel Enrichment Plant (FFEP) is, according to the DIQ of 18 January 2012,<sup>21</sup> a centrifuge enrichment plant for the production of UF<sub>6</sub> enriched up to 20% U-235 and the production of UF<sub>6</sub> enriched up to 5% U-235. Additional information from Iran is still needed in connection with this facility, particularly in light of the difference between the original stated purpose of the facility and the purpose for which it is now being used.<sup>22</sup> The facility, which was first brought into operation in 2011, is being built to contain 16 cascades, equally divided between Unit 1 and Unit 2, with a total of approximately 3000 centrifuges.<sup>23</sup> To date, all of the centrifuges installed are IR-1 machines.

24. As of 18 August 2012, Iran had installed all eight cascades in Unit 2, four of which (configured in two sets of two interconnected cascades) it was feeding with UF<sub>6</sub> enriched to 3.5% U-235. In Unit 1, Iran had completely installed four cascades and partially installed a fifth cascade, none of which it was feeding with UF<sub>6</sub> (see Figure 7).

25. Iran has estimated that, between 14 December 2011, when feeding of the first set of two interconnected cascades began, and 12 August 2012, a total of 482 kg of UF<sub>6</sub> enriched up to 5% U-235 was fed into cascades at FFEP, and that approximately 65.3 kg of UF<sub>6</sub> enriched up to 20% U-235 were produced, 50 kg of which has been withdrawn from the process and verified by the Agency.

26. With regard to the presence of particles with enrichment levels above 20% U-235,<sup>24</sup> Iran's explanation is not inconsistent with the further assessment made by the Agency since the previous report.<sup>25</sup> The Agency and Iran have exchanged views on ways to avoid a recurrence of transient enrichment levels above the level stated in the DIQ.

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<sup>19</sup> GOV/2012/23, para. 20.

<sup>20</sup> Results are available to the Agency for samples taken up to 21 April 2012.

<sup>21</sup> To date, Iran has provided the Agency with an initial DIQ and three revised DIQs (GOV/2012/9, para. 24).

<sup>22</sup> GOV/2009/74, para. 14.

<sup>23</sup> GOV/2009/74, para. 9.

<sup>24</sup> GOV/2012/23, para. 28.

<sup>25</sup> On 11 April 2012, Iran disconnected the product cylinder from the process and the Agency verified that the enrichment level of the UF<sub>6</sub> contained in the product cylinder was 19.2%, i.e. within the level stated in the DIQ.

### **D.3. Other Enrichment Related Activities**

27. The Agency is still awaiting a substantive response from Iran to Agency requests for further information in relation to announcements made by Iran concerning the construction of ten new uranium enrichment facilities, the sites for five of which, according to Iran, have been decided.<sup>26</sup> Iran has not provided information, as requested by the Agency, in connection with its announcement on 7 February 2010 that it possessed laser enrichment technology.<sup>27</sup> As a result of Iran's lack of cooperation on those issues, the Agency is unable to verify and report fully on these matters.

## **E. Reprocessing Activities**

28. Pursuant to the relevant resolutions of the Board of Governors and the Security Council, Iran is obliged to suspend its reprocessing activities, including R&D.<sup>28</sup> In a letter to the Agency dated 15 February 2008, Iran stated that it "does not have reprocessing activities". In that context, the Agency has continued to monitor the use of hot cells at the Tehran Research Reactor (TRR)<sup>29</sup> and the Molybdenum, Iodine and Xenon Radioisotope Production (MIX) Facility.<sup>30</sup> The Agency carried out an inspection and DIV at TRR on 6 August 2012, and a DIV at the MIX Facility on 8 August 2012. It is only with respect to TRR, the MIX Facility and the other facilities to which the Agency has access that the Agency can confirm that there are no ongoing reprocessing related activities in Iran.

## **F. Heavy Water Related Projects**

29. Contrary to the relevant resolutions of the Board of Governors and the Security Council, Iran has not suspended work on all heavy water related projects, including the construction of the heavy water moderated research reactor at Arak, the Iran Nuclear Research Reactor (IR-40 Reactor), which is under Agency safeguards.<sup>31</sup>

30. On 1 August 2012, the Agency carried out a DIV at the IR-40 Reactor at Arak and observed that, as part of the facility's ongoing construction, cooling and moderator circuit piping was being installed. As previously reported, Iran has stated that the operation of the IR-40 Reactor is due to commence in the third quarter of 2013.<sup>32</sup>

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<sup>26</sup> 'Iran Specifies Location for 10 New Enrichment Sites', Fars News Agency, 16 August 2010.

<sup>27</sup> Cited on the website of the Presidency of the Islamic Republic of Iran, 7 February 2010, at <http://www.president.ir/en/?ArtID=20255>.

<sup>28</sup> S/RES/1696 (2006), para. 2; S/RES/1737 (2006), para. 2; S/RES/1747 (2007), para. 1; S/RES/1803 (2008), para. 1; S/RES/1835 (2008), para. 4; S/RES/1929 (2010), para. 2.

<sup>29</sup> TRR is a 5 MW reactor which operates with 20% U-235 enriched fuel and is used for the irradiation of different types of targets and for research and training purposes.

<sup>30</sup> The MIX Facility is a hot cell complex for the separation of radiopharmaceutical isotopes from targets, including uranium, irradiated at TRR. The MIX Facility is not currently processing any uranium targets.

<sup>31</sup> S/RES/1737 (2006), para. 2; S/RES/1747 (2007), para. 1; S/RES/1803 (2008), para. 1; S/RES/1835 (2008), para. 4; S/RES/1929 (2010), para. 2.

<sup>32</sup> GOV/2012/23, para. 32.

31. Since its visit to the Heavy Water Production Plant (HWPP) on 17 August 2011, the Agency has not been provided with further access to the plant. As a result, the Agency is again relying on satellite imagery to monitor the status of HWPP. Based on recent images, the plant appears to be in operation. To date, Iran has not permitted the Agency to take samples from the heavy water stored at the Uranium Conversion Facility (UCF).<sup>33</sup>

## G. Uranium Conversion and Fuel Fabrication

32. Although it is obliged to suspend all enrichment related activities and heavy water related projects, Iran is conducting a number of activities at UCF, the Fuel Manufacturing Plant (FMP) and the Fuel Plate Fabrication Plant (FPFP) at Esfahan, as indicated below, which are in contravention of those obligations, although the facilities are under Agency safeguards. Iran has stated that it is conducting these activities in order to make fuel for research reactors.<sup>34</sup>

33. According to the latest information available to the Agency, Iran has produced:

- at UCF: 550 tonnes of natural UF<sub>6</sub>, 91 tonnes of which has been sent to FEP; and
- at FMP and FPFP: seven fuel items containing uranium enriched up to 20% U-235, two fuel items containing uranium enriched to 3.34% U-235 and five fuel items containing natural uranium (see Figure 8).

34. **Uranium Conversion Facility:** Between 5 and 9 March 2012, the Agency carried out a physical inventory verification (PIV) at UCF, the results of which are now being evaluated by the Agency. As previously reported, the Agency has verified that Iran produced 24 kg of uranium in the form of UO<sub>2</sub> during R&D activities involving the conversion of UF<sub>6</sub> enriched up to 3.34% U-235 into UO<sub>2</sub>, and that 13.6 kg of uranium in the form of UO<sub>2</sub> was subsequently transferred to FMP.<sup>35</sup> As of 10 August 2012, Iran had resumed these R&D activities, but had not produced additional uranium in the form of UO<sub>2</sub>. As of the same date, Iran, through the conversion of uranium ore concentrate (UOC), had produced about 3340 kg of natural uranium in the form of UO<sub>2</sub>, of which the Agency has verified that Iran transferred 1272 kg to FMP (see Figure 9).

35. On 22 April 2012, Iran introduced into the UCF process area 25 drums containing approximately 6560 kg of domestically produced UOC, and 25 drums containing approximately 9180 kg of UOC taken from Iran's stockpile of imported UOC.<sup>36</sup> Iran has mixed together the UOC from these 50 drums and used it for the production of natural UO<sub>2</sub>.

36. **Fuel Manufacturing Plant:** On 22 August 2012, the Agency carried out a DIV and an inspection at FMP and confirmed that the manufacture of pellets for the IR-40 Reactor using natural UO<sub>2</sub> was ongoing. While Iran was continuing to manufacture dummy fuel assemblies for the IR-40 Reactor,<sup>37</sup> it was not manufacturing fuel assemblies containing nuclear material.

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<sup>33</sup> GOV/2010/10, paras 20 and 21.

<sup>34</sup> As declared in Iran's DIQs for FPFP.

<sup>35</sup> GOV/2012/23, para. 35.

<sup>36</sup> GOV/2003/75, Annex I, para. 8.

<sup>37</sup> A dummy assembly is similar to a fuel assembly except that it contains non-nuclear material.

37. **Fuel Plate Fabrication Plant:** As previously reported,<sup>38</sup> Iran has combined into one facility the activities involving the conversion of UF<sub>6</sub> enriched up to 20% U-235 into U<sub>3</sub>O<sub>8</sub> and the manufacture of fuel assemblies made of fuel plates containing U<sub>3</sub>O<sub>8</sub>. Between the start of conversion activities on 17 December 2011 and 12 August 2012, Iran has fed into the process 71.25 kg of UF<sub>6</sub> enriched up to 20% U-235 and produced 31.1 kg of uranium enriched up to 20% U-235 in the form of U<sub>3</sub>O<sub>8</sub>.

## H. Possible Military Dimensions

38. Previous reports by the Director General have identified outstanding issues related to possible military dimensions to Iran's nuclear programme and actions required of Iran to resolve these.<sup>39</sup> Since 2002, the Agency has become increasingly concerned about the possible existence in Iran of undisclosed nuclear related activities involving military related organizations, including activities related to the development of a nuclear payload for a missile.

39. The Annex to the Director General's November 2011 report (GOV/2011/65) provided a detailed analysis of the information available to the Agency, indicating that Iran has carried out activities that are relevant to the development of a nuclear explosive device. This information, which comes from a wide variety of independent sources, including from a number of Member States, from the Agency's own efforts and from information provided by Iran itself, is assessed by the Agency to be, overall, credible. The information indicates that, prior to the end of 2003 the activities took place under a structured programme; that some continued after 2003; and that some may still be ongoing. Since November 2011, the Agency has obtained more information which further corroborates the analysis contained in the aforementioned Annex.

40. In resolution 1929 (2010), the Security Council reaffirmed Iran's obligations to take the steps required by the Board of Governors in its resolutions GOV/2006/14 and GOV/2009/82, and to cooperate fully with the Agency on all outstanding issues, particularly those which give rise to concerns about the possible military dimensions to Iran's nuclear programme, including by providing access without delay to all sites, equipment, persons and documents requested by the Agency.<sup>40</sup> In its resolution GOV/2011/69 of 18 November 2011, the Board of Governors, inter alia, expressed its deep and increasing concern about the unresolved issues regarding the Iranian nuclear programme, including those which need to be clarified to exclude the existence of possible military dimensions.

41. **Parchin:** As stated in the Annex to the Director General's November 2011 report,<sup>41</sup> information provided to the Agency by Member States indicates that Iran constructed a large explosives containment vessel in which to conduct hydrodynamic experiments. The information also indicates that this vessel was installed at the Parchin site in 2000. The location at the Parchin site of the vessel was only identified in March 2011. The Agency notified Iran of that location in January 2012.

42. Satellite imagery available to the Agency for the period from February 2005 to January 2012 shows virtually no activity at or near the building housing the containment vessel. However, since the Agency's first request for access to this location, satellite imagery shows that extensive activities and

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<sup>38</sup> GOV/2012/23, para. 38.

<sup>39</sup> GOV/2011/29, para. 35; GOV/2011/7, Attachment; GOV/2010/10, paras 40–45; GOV/2009/55, paras 18–25; GOV/2008/38, paras 14–21; GOV/2008/15, paras 14–25 and Annex; GOV/2008/4, paras 35–42; GOV/2011/65, paras 38–45 and Annex.

<sup>40</sup> S/RES/1929, paras 2 and 3.

<sup>41</sup> GOV/2011/65, Annex, para. 49.



resultant changes have taken place at this location. A number of satellite images of the location since February 2012 show: large amounts of liquid ‘run off’ emanating from the building in which the vessel is housed; equipment in open storage immediately outside the building; the removal of external fixtures from the building itself; and the presence of light and heavy vehicles. Satellite imagery shows that, as of May 2012, five other buildings or structures at the location had been demolished, and power lines, fences and all paved roads had been removed. Significant ground scraping and landscaping have been undertaken over an extensive area at and around the location, with new dirt roads established. Satellite images from August 2012 show the containment vessel building shrouded. In light of these extensive activities, the Agency’s ability to verify the information on which its concerns are based has been adversely affected and, when the Agency gains access to the location, its ability to conduct effective verification will have been significantly hampered.

43. In a letter to the Agency dated 29 August 2012, Iran stated that the allegation of nuclear activities at the Parchin site is “baseless” and that “the recent activities claimed to be conducted in the vicinity of the location of interest to the Agency, has nothing to do with specified location by the Agency”.

44. The activities observed and Iran’s letter of 29 August 2012 further strengthen the Agency’s assessment that it is necessary to have access to the location at Parchin without further delay.

## **I. Design Information**

45. Contrary to its Safeguards Agreement and relevant resolutions of the Board of Governors and the Security Council, Iran is not implementing the provisions of the modified Code 3.1 of the Subsidiary Arrangements General Part to Iran’s Safeguards Agreement,<sup>42</sup> which provides for the submission to the Agency of design information for new facilities as soon as the decision to construct, or to authorize construction of, a new facility has been taken, whichever is the earlier. The modified Code 3.1 also provides for the submission of fuller design information as the design is developed early in the project definition, preliminary design, construction and commissioning phases. Iran remains the only State with significant nuclear activities in which the Agency is implementing a comprehensive safeguards agreement that is not implementing the provisions of the modified Code 3.1. It is important to note that the absence of such early information reduces the time available for the Agency to plan the necessary safeguards arrangements, especially for new facilities, and reduces the level of confidence in the absence of other nuclear facilities.<sup>43</sup>

46. Iran last provided the Agency with some updated information on the IR-40 Reactor in 2007, but has not provided a DIQ for the facility since 2006. Since 2007, Iran has conducted significant additional design and construction work on the reactor, but has not provided further information, as required pursuant to modified Code 3.1 of Iran’s Subsidiary Arrangements General Part. The lack of up-to-date information on the IR-40 Reactor is now having an adverse impact on the Agency’s ability to effectively verify the design of the facility and to implement an effective safeguards approach. On 1 August 2012, the Agency conducted a survey of the site in order to identify which safeguards equipment it would need to install at the IR-40 Reactor and where it should be located. Although Iran

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<sup>42</sup> In accordance with Article 39 of Iran’s Safeguards Agreement, agreed Subsidiary Arrangements cannot be changed unilaterally; nor is there a mechanism in the Safeguards Agreement for the suspension of provisions agreed to in the Subsidiary Arrangements. Therefore, as previously explained in the Director General’s reports (see, for example, GOV/2007/22, 23 May 2007), the modified Code 3.1, as agreed to by Iran in 2003, remains in force. Iran is further bound by operative paragraph 5 of Security Council resolution 1929 (2010) to “comply fully and without qualification with its IAEA Safeguards Agreement, including through the application of modified Code 3.1”.

<sup>43</sup> GOV/2010/10, para. 35.

provided the Agency with some relevant technical details during that visit, it did not provide an updated DIQ.

47. As previously reported, Iran's response to Agency requests that Iran confirm or provide further information regarding its stated intention to construct new nuclear facilities is that it would provide the Agency with the required information in "due time" rather than as required by the modified Code 3.1 of the Subsidiary Arrangements General Part to its Safeguards Agreement.<sup>44</sup>

## **J. Additional Protocol**

48. Contrary to the relevant resolutions of the Board of Governors and the Security Council, Iran is not implementing its Additional Protocol. The Agency will not be in a position to provide credible assurance about the absence of undeclared nuclear material and activities in Iran unless and until Iran provides the necessary cooperation with the Agency, including by implementing its Additional Protocol.<sup>45</sup>

## **K. Other Matters**

49. As previously reported,<sup>46</sup> the Agency found a discrepancy of 19.8 kg between the amount of nuclear material declared by the operator and that measured by the Agency in connection with conversion experiments carried out by Iran at the Jabr Ibn Hayan Multipurpose Research Laboratory (JHL) between 1995 and 2002.<sup>47</sup> Following further analysis and measurement of the relevant material by the Agency and evaluation of clarifications and corrections provided by Iran, the Agency has been able to reduce its initial estimate of the discrepancy. The Agency and Iran have agreed to conduct further analysis with a view to resolving the discrepancy.

50. In June 2012, Iran started using one of the fuel assemblies consisting of 19 fuel plates containing  $\text{U}_3\text{O}_8$  enriched up to 20% U-235 as an integral part of the core of TRR. In August 2012, Iran also started using in the core of TRR one of the control fuel assemblies consisting of 14 fuel plates containing  $\text{U}_3\text{O}_8$  enriched up to 20% U-235. Iran has also continued to use a fuel assembly containing 12 rods of  $\text{UO}_2$  enriched to 3.34% U-235 as one of the control assemblies in the core of TRR. On 9 July 2012, the Agency verified the receipt at TRR of one control fuel assembly containing 14 plates and two fuel rods containing natural  $\text{UO}_2$ . As requested, Iran has provided the Agency with further information about the irradiation of nuclear material received from FMP, as well as the TRR operator's plans for irradiating such material.

51. As previously reported,<sup>48</sup> according to Iran, commissioning activity at the Bushehr Nuclear

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<sup>44</sup> GOV/2011/29, para. 37; GOV/2012/23, para. 29.

<sup>45</sup> Iran's Additional Protocol was approved by the Board on 21 November 2003 and signed by Iran on 18 December 2003, although it has not been brought into force. Iran provisionally implemented its Additional Protocol between December 2003 and February 2006.

<sup>46</sup> GOV/2012/9, para. 46.

<sup>47</sup> This material had been under Agency seal since 2003; GOV/2003/75, paras 20–25 and Annex 1; GOV/2004/34, para. 32, and Annex, paras 10–12; GOV/2004/60, para. 33, Annex, paras 1–7; GOV/2011/65, para. 49.

<sup>48</sup> GOV/2012/9, para. 49.

Power Plant (BNPP) commenced on 31 January 2012. On 29 and 30 July 2012, the Agency conducted an inspection at BNPP while the reactor was operating at 75% of its nominal power.

## **L. Summary**

52. While the Agency continues to verify the non-diversion of declared nuclear material at the nuclear facilities and LOFs declared by Iran under its Safeguards Agreement, as Iran is not providing the necessary cooperation, including by not implementing its Additional Protocol, the Agency is unable to provide credible assurance about the absence of undeclared nuclear material and activities in Iran, and therefore to conclude that all nuclear material in Iran is in peaceful activities.<sup>49</sup>

53. Despite the intensified dialogue between the Agency and Iran since January 2012, no concrete results have been achieved in resolving the outstanding issues. Given the nature and extent of credible information available, the Agency considers it essential for Iran to engage with the Agency without further delay on the substance of the Agency's concerns. In the absence of such engagement, the Agency will not be able to resolve concerns about issues regarding the Iranian nuclear programme, including those which need to be clarified to exclude the existence of possible military dimensions to Iran's nuclear programme.

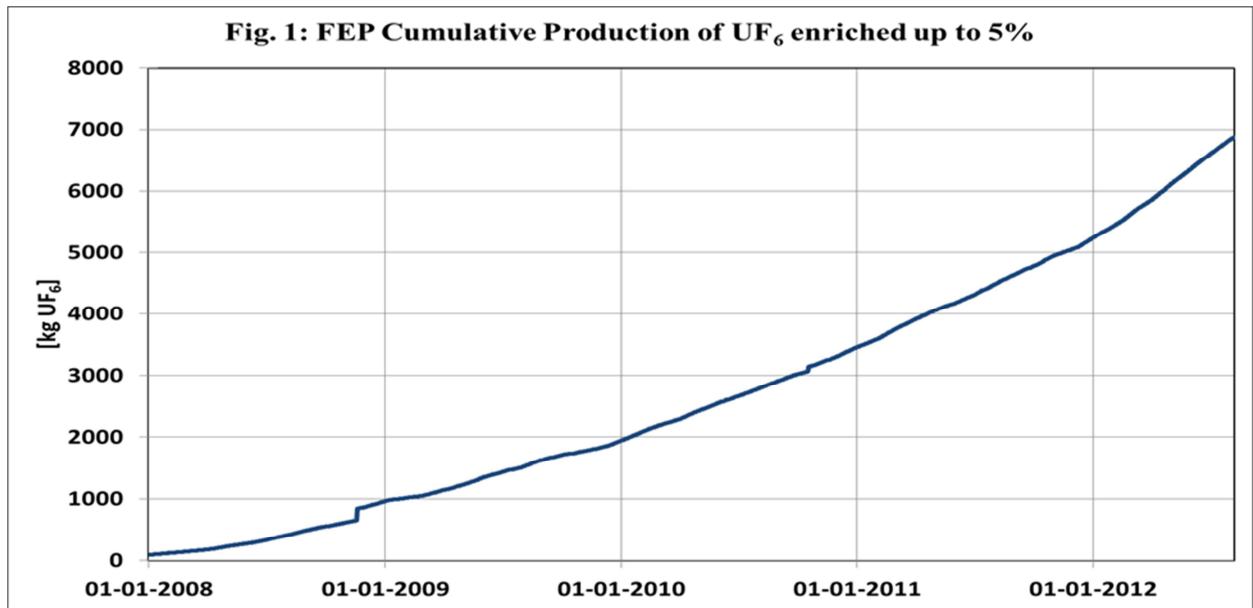
54. It is a matter of concern that the activities which have taken place since February 2012 at the location within the Parchin site to which the Agency has requested access will have an adverse impact on the Agency's ability to undertake effective verification. The Agency reiterates its request for access to that location without further delay.

55. The Director General continues to urge Iran, as required in the binding resolutions of the Board of Governors and mandatory Security Council resolutions, to take steps towards the full implementation of its Safeguards Agreement and its other obligations, and to urge Iran to engage with the Agency to achieve concrete results on all outstanding substantive issues.

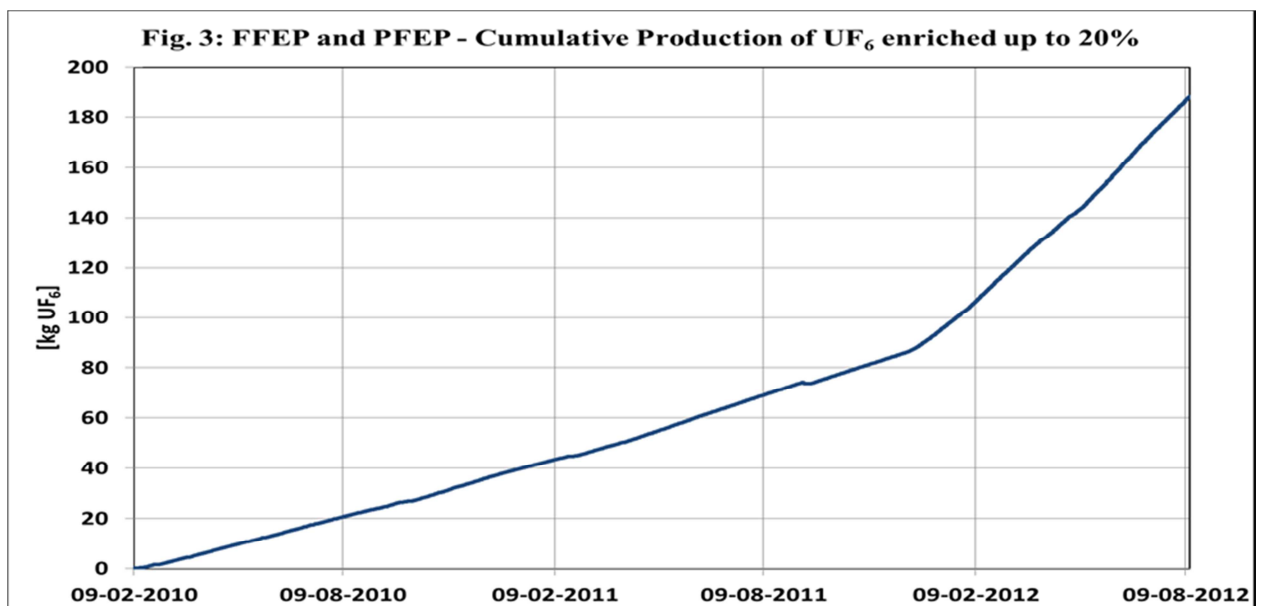
56. The Director General will continue to report as appropriate.

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<sup>49</sup> The Board has confirmed on numerous occasions, since as early as 1992, that paragraph 2 of INFCIRC/153 (Corr.), which corresponds to Article 2 of Iran's Safeguards Agreement, authorizes and requires the Agency to seek to verify both the non-diversion of nuclear material from declared activities (i.e. correctness) and the absence of undeclared nuclear activities in the State (i.e. completeness) (see, for example, GOV/OR.864, para. 49).



| Fig. 2: Summary of UF <sub>6</sub> Flows |                |            |            |
|--|----------------|------------|------------|
|  | Date           | Quantity   | Enrichment |
| Produced at UCF                          | 22 August 2012 | 550 000 kg | Natural    |
| Fed into FEP                             | 6 August 2012  | 79 381 kg  | Natural    |
| Produced at FEP                          | 6 August 2012  | 6 876 kg   | Up to 5%   |
| Fed into PFEP                            | 21 August 2012 | 1 084.8 kg | Up to 5%   |
| Produced at PFEP                         | 21 August 2012 | 124.1 kg   | Up to 20%  |
| Fed into FFEP                            | 12 August 2012 | 482 kg     | Up to 5%   |
| Produced in FFEP                         | 12 August 2012 | 65.3 kg    | Up to 20%  |



| <b>Fig. 4: Inventory of UF<sub>6</sub> enriched to 20% U-235 (August 2012)</b> |          |
|--|----------|
| Produced at FFEP and PFEP  | 189.4 kg |
| Fed into conversion  | 96.3 kg  |
| Downblended  | 1.6 kg   |
| Stored as UF <sub>6</sub>  | 91.4 kg  |

| <b>Fig. 5: FEP Production Hall A – Status on 21 August 2012</b> |   |
|---|---|
| Unit A21  | No centrifuges installed  |
| Unit A22  | No centrifuges installed  |
| Unit A23  | No centrifuges installed  |
| Unit A24  | 18 cascades of 164 IR-1 centrifuges producing UF <sub>6</sub> enriched up to 5% U-235   |
| Unit A25  | 18 cascades with empty IR-1 centrifuge casings  |
| Unit A26  | 6 cascades of 164 IR-1 centrifuges producing UF <sub>6</sub> enriched up to 5% U-235<br>12 cascades of 174 IR-1 centrifuges producing UF <sub>6</sub> enriched up to 5% U-235 |
| Unit A27  | 15 cascades with empty IR-1 centrifuge casings<br>1 cascade of 174 IR-1 centrifuges installed<br>1 cascade with 93 IR-1 centrifuges installed<br>1 cascade empty              |
| Unit A28  | 18 cascades of 174 IR-1 centrifuges producing UF <sub>6</sub> enriched up to 5% U-235   |

| <b>Fig. 6: PFEP – Status on 18 August 2012</b> |   |
|--|---|
| Cascade 1                                      | 164 IR-1 centrifuges connected to Cascade 6<br>producing UF <sub>6</sub> enriched up to 20% U-235 |
| Cascade 2                                      | 10-machine cascade of IR-4 centrifuges  |
| Cascade 3                                      | Empty   |
| Cascade 4                                      | 123 IR-4 centrifuges installed  |
| Cascade 5                                      | 162 IR-2m centrifuges installed   |
| Cascade 6                                      | 164 IR-1 centrifuges connected to Cascade 1<br>producing UF <sub>6</sub> enriched up to 20% U-235 |

| <b>Fig. 7: FFEP – Status on 18 August 2012</b> |   |
|--|---|
| Unit 1   | 4 cascades each with 174 IR-1 centrifuges installed<br>1 cascade with 52 IR-1 centrifuges installed<br>3 cascades empty               |
| Unit 2   | 4 cascades of 174 IR-1 centrifuges producing UF <sub>6</sub> enriched up to 20% U-235<br>4 cascades of 174 IR-1 centrifuges installed |

| <b>Fig. 8: FMP and FPEP - Fuel items produced</b> |          |                    |                   |                                 |
|---|----------|--------------------|-------------------|---------------------------------|
| Item  | Produced | Unit Mass<br>[g U] | Enrichment<br>[%] | Irradiated or<br>in core at TRR |
| MTR Control Fuel Element                          | 2        | 1 000              | 19                | 2                               |
| MTR Plate   | 3        | 75                 | 19                | 1                               |
| MTR Standard Fuel Element                         | 2        | 1 300              | 19                | 1                               |
| Rod Assembly                                      | 2        | 6 000              | 3.4               | 1                               |
| Test Rod IR-40 Reactor                            | 3        | 500                | NU                | 1                               |
| MTR Test Plate                                    | 2        | 5                  | NU                | 1                               |

| <b>Fig. 9: UCF - Conversion Activities</b>                      |  |
|---|--|
| Activity  | Production (difference since last report)                |
| UF <sub>6</sub> (<20% U-235) into U <sub>3</sub> O <sub>8</sub> | 31.1 kg produced<br>(+17.1 kg)                           |
| UF <sub>6</sub> (~3.4 % U-235) into UO <sub>2</sub>             | 24 kg produced, 13.6 kg to FMP<br>(no change)            |
| Natural UOC into UO <sub>2</sub>                                | 3340 kg produced (+1840 kg), 1272 kg to<br>FMP (+513 kg) |